## Space Weather Forecast

Issued on Saturday, 02 July 2022 at 13:26 Local

**This forecast provides a four day assessment of space weather events. The probabilities stated below are for reaching or exceeding the given levels. For more information about space weather impacts please see the Met Office Space Weather Scales https://www.metoffice.gov.uk/weather/learn-about/space-weather/uk-scales**

---

**Space Weather Forecast Headline: Very slight chance of Moderate-class flares. Chance of G1/Minor Storm conditions on Day 3 or 4.**

**Analysis of Space Weather Activity over past 24 hours**

**Solar Activity:** Solar activity has been Very Low over the past 24 hours, with no significant flares observed. There are six sunspot regions on the visible disc. The largest region in the far northeast is a simple, inactive region at this time. A small, but slightly complex group in the far southwest has decayed somewhat, but with some minor spots of opposite polarity in the trailer portion of the group. All other regions are small and simple regions. No Earth-directed Coronal Mass Ejections (CMEs) were observed in available imagery.

**Solar Wind / Geomagnetic Activity:** The solar wind speed has been on a slow, steady decline during the period, from 360km/s to around 330km/s. The magnetic field strength was initially weak, though increased to moderate after 01/1900 UTC, this is likely associated with the arrival of a slow CME. The important north-south component of the magnetic field, though initially weakly positive became predominantly moderately negative between 01/2200 and 02/0900 UTC, before transitioning to weakly positive again. Resultant geomagnetic activity was initially Quiet (Kp1), but became generally Unsettled to Active (Kp3-4) from 01/1800 UTC onwards, with a G1/Minor Storm interval 02/0300-0600 UTC.

**Energetic Particles / Solar Radiation:** The count rate of energetic particles (high energy protons) remained at background with no solar radiation storms occurring.

**Four-Day Space Weather Forecast Summary**

**Solar Activity:** Solar activity is likely to be Low or Very Low, with a very slight chance of Moderate activity.

**Solar Wind / Geomagnetic Activity:** Subsiding geomagnetic effects are currently being observed following the arrival of the CME on the 1st July, though activity could increase again for a time if any prolonged period of southwards IMF is observed. A further weak CME may also arrive later on the 2nd July (Day 1). There is the possibility of another CME arrival from the 29th June, to arrive either late on 4th July (Day 3) into the 5th July (Day 4), though again, this is expected to be a weak feature with limited increase in solar wind, which is presently at background levels.

Although in a background solar wind regime at present, one or more high speed streams from coronal holes are likely to affect Earth in the coming days. The most notable being a large coronal hole in the northern hemisphere, expected to arrive either on the 5th or 6th July.

Geomagnetic activity is forecast to be largely Quiet to Unsettled at first, with a chance of isolated Active intervals, mainly on Day 1. Thereafter, activity should increase to Unsettled to Active on Day 3, with a chance of G1/Minor Storm conditions, mainly on Day 4.

**Energetic Particles / Solar Radiation:** In the absence of any significant sunspot development, the count rate of energetic particles (high energy protons) is forecast to persist at background levels, with no solar radiation storms occurring.

Issued by Met Office Space Weather Advisor, Tel: +44 (0) 330 135 4254 Email: moswoc@metoffice.gov.uk

© Crown Copyright 2022. All Rights Reserved.

Met Office

# Space Weather Forecast

**Geomagnetic Storms:**

| Geo-Magnetic Storm Probability (Exceedance) | Level | Past 24 Hours (Yes/No) | Day 1 (00-24 UTC) (%) | Day 2 (00-24 UTC) (%) | Day 3 (00-24 UTC) (%) | Day 4 (00-24 UTC) (%) |
|---|---|---|---|---|---|---|
| Minor or Moderate | G1 to G2 | Yes | 5 | 5 | 20 | 30 |
| Strong | G3 | No | 1 | 1 | 1 | 1 |
| Severe | G4 | No | 1 | 1 | 1 | 1 |
| Extreme | G5 | No | 1 | 1 | 1 | 1 |

**Radio Blackouts - X Ray Flares:**

| X Ray Flares Probability | Level | Past 24 Hours (Yes/No) | Day 1 (00-24 UTC) (%) | Day 2 (00-24 UTC) (%) | Day 3 (00-24 UTC) (%) | Day 4 (00-24 UTC) (%) |
|---|---|---|---|---|---|---|
| Active | R1-R2 M Class | No | 5 | 5 | 5 | 5 |
| Very Active | R3 to R5 X | No | 1 | 1 | 1 | 1 |

**Solar Radiation Storms - (High Energy Protons):**

| Radiation Storms Probability (Exceedance) | Level ($cm^{-2}$ $sr^{-1}$ $s^{-1}$) | Past 24 Hours (Yes/No) | Day 1 (00-24 UTC) (%) | Day 2 (00-24 UTC) (%) | Day 3 (00-24 UTC) (%) | Day 4 (00-24 UTC) (%) |
|---|---|---|---|---|---|---|
| Active | ≥ S1 | No | 1 | 1 | 1 | 1 |
| Very Active | ≥ S3 * | No | 1 | 1 | 1 | 1 |

* S3 ≥ 10 MeV ≥ 1000 pfu and / or ≥ 50 MeV ≥ 10 pfu. (pfu = $cm^{-2}sr^{-1}s^{-1}$)

Issued by Met Office Space Weather Advisor, Tel: +44 (0) 330 135 4254 Email: moswoc@metoffice.gov.uk

© Crown Copyright 2022. All Rights Reserved.